

What is claimed is:

1. A method of depositing a layer of silver on a substrate comprising the step of contacting a substrate having a layer of a metal that is less electropositive than silver with an immersion silver plating bath comprising one or more sources of silver ions, water and one or more carboxylic acid-substituted nitrogen-containing heterocyclic compounds, wherein the bath has a pH of less than or equal to 4.
2. The method of claim 1 wherein the substrate is a printed wiring board substrate.
3. The method of claim 1 wherein the metal that is less electropositive than silver is chosen from zinc, iron, tin, nickel, lead, copper or alloys of zinc, iron, tin, nickel, lead and copper.
4. The method of claim 1 wherein the carboxylic acid-substituted nitrogen-containing heterocyclic compounds is chosen from picolinic acid, quinolinic acid, nicotinic acid, isonicotinic acid, fusaric acid, isonipecotic acid, nipecotic acid, 2,6-pyridine dicarboxylic acid, piperazine-2-carboxylic acid, pyrrole-2-carboxylic acid and piperolinic acid.
5. The method of claim 1 wherein the carboxylic acid-substituted nitrogen-containing heterocyclic compound comprises a nitrogen-containing heterocyclic moiety chosen from pyridine, piperidine, piperazine, pyrrole, morpholine, pyrrolidine, triazole, and imidazole.
6. A method of manufacturing a printed wiring board comprising the step of contacting a printed wiring board substrate having a layer of a metal that is less electropositive than silver with an immersion silver plating bath comprising one or more sources of silver ions, water and one or more carboxylic acid-substituted nitrogen-containing heterocyclic compounds, wherein the silver plating bath has a pH of less than or equal to 4.
7. An immersion silver plating bath comprising one or more sources of silver ions, water and one or more carboxylic acid-substituted nitrogen-containing heterocyclic compounds, wherein the silver plating bath has a pH of less than or equal to 4.
8. The immersion silver plating bath of claim 7 wherein the bath is free of cyanide ions, ammonia and ammonium ions.
9. The immersion silver plating bath of claim 7 wherein the carboxylic acid-substituted nitrogen-containing heterocyclic compound is chosen from picolinic acid, quinolinic acid,

nicotinic acid, isonicotinic acid, fusaric acid, isonipecotic acid, nipecotic acid, 2,6-pyridine dicarboxylic acid, piperazine-2-carboxylic acid, pyrrole-2-carboxylic acid and piperolinic acid.

10. The immersion silver plating bath of claim 7 wherein the carboxylic acid-substituted nitrogen-containing heterocyclic compound comprises a nitrogen-containing heterocyclic moiety selected chosen from pyridine, piperidine, piperazine, pyrrole, morpholine, pyrrolidine, triazole, and imidazole

11. The immersion silver plating bath of claim 7 further comprising one or more thickness control agents.

12. The immersion silver plating bath of claim 11 wherein the thickness control agent is chosen from azoles, amino acids, hydroxy-substituted aromatic compounds, sulfur-containing compounds and hydantoins.